

## **ABSTRACT AMENDMENTS**

Substitute the Abstract at page 19, with the following:

The present invention is directed to **Computer graphics** systems and methods for all-frequency relighting **are described. In one described embodiment, all-frequency relighting is achieved** by representing low frequencies of lighting with spherical harmonics and [approximate] **approximating** the residual high-frequency energy with point lights. **In another** One such embodiment [renders] low-frequencies **are rendered** with precomputed radiance transfer (PRT) **techniques** (which requires only a moderate amount of precomputation and storage); while the higher-frequencies are rendered with on-the-fly techniques such as shadow maps and shadow volumes. In addition, various embodiments are directed to a systems and methods for decomposing the lighting into harmonics and sets of point lights. Various alternative embodiments are directed to systems and methods for characterizing the types of environments for which the described decomposition is a viable technique in terms of speed (efficiency) versus quality (realism):